

switching to a combination therapy from monotherapy, regardless of medical conditions. Further research is required to evaluate the possible negative aspects of FDC drugs.

#### PCV47

##### PREDICTING LONG-TERM COSTS OF HEART VALVE REPLACEMENT: A COMPARATIVE ANALYSIS BETWEEN PROSTHESIS TYPES

Culler S<sup>1</sup>, Levitsky S<sup>2</sup>

<sup>1</sup>Rollins School of Public Health at Emory University, Atlanta, GA, USA, <sup>2</sup>Harvard Medical School, Boston, MA, USA

**OBJECTIVES:** This study reports the results of an economic model predicting differences in lifetime cost of health care services consumed following heart valve surgery by prosthesis type. This model examines: Mechanical Valve (MV), Stented Tissue (ST) and the emerging Transcatheter Valve (replacement surgery only) **METHODS:** The economic model assumes a 55-year-old valve disease patient requiring surgery with a 25 year post-surgery life expectancy. Peer reviewed journals provided estimates of complication event rates by prosthesis type. The model estimated costs for two possible types of valve replacement procedure at year 15 for patients receiving initial ST prosthesis: 1) a second ST surgery (ST), or 2) a transcatheter valve in valve (ViV) approach. Average annual inflation rate of 3% was used. Clinical events included: initial valve surgery; thrombotic events; bleeding events; warfarin and monitoring; echo monitoring; paravalvular leak; endocarditis; pacemaker insertion following valve surgery; reoperation due to structural valve deterioration; and clinical complications following transcatheter procedures. **RESULTS:** Cumulative costs were estimated to be \$124,200 using MV during initial surgery; \$183,600 using STs; and \$478,048 using ViV. The MV resulted in lower expected health care costs in every year versus either ST approaches. The MV choice at the initial surgery results in a lifetime cost saving of \$59,400 and \$353,882 compared to using STs and ViV, respectively. The MV approach obtains the majority of its savings after year 15. **CONCLUSIONS:** Our model estimates changing initial prosthesis choice to the MV in the estimated 20,000 ST valve surgeries performed annually in the U.S. among patients below age 65 would result in approximately \$1.2 billion lifetime reduction in direct health care expenditures over the next 25 years. The majority of savings occur when these patients would be Medicare Beneficiaries.

#### PCV48

##### A MODEL UTILIZING PREOPERATIVE MARKERS TO PREDICT PATIENTS ASSOCIATED WITH HIGH COST IN OPEN VERSUS ENDOVASCULAR REPAIR OF NON-RUPTURED ABDOMINAL AORTIC ANEURYSM

Jones C<sup>1</sup>, Callas P<sup>2</sup>, Spitsberg R<sup>3</sup>, DeSarno M<sup>2</sup>, Stanley A<sup>3</sup>

<sup>1</sup>University of Vermont - College of Medicine, Burlington, VT, USA, <sup>2</sup>University of Vermont - Biostatistics Unit, Burlington, VT, USA, <sup>3</sup>University of Vermont - College of Medicine, Burlington, VT, USA

**OBJECTIVES:** We examined predictors of high cost for abdominal aortic aneurysm (AAA) repair in order to identify patients who are likely to require more intensive treatments. In general, younger, healthier patients with unfavorable anatomy are good candidates for Open AAA repair while older patients with significant comorbidities and favorable anatomy have better results when treated with the less invasive endovascular aneurysm repair (EVAR) procedure. Indeed, a sizable number of patients present with AAA who could be treated safely following either modality. **METHODS:** A dataset of elective AAA repairs totaling 389 Fletcher Allen Health Care patients (230 EVAR, 159 OPEN) was analyzed retrospectively over the time period January 1, 2003 through December 31, 2011. Direct and indirect costs were obtained along with length of stay (LOS) and other clinical and behavioral parameters. Models to predict being in the upper quartile of cost were developed using logistic regression. **RESULTS:** Significant predictors of being in the upper quartile of costs for Open patients were history of treated COPD, previous bypass surgery, transfer from hospital, and age >70, with area under ROC=0.726. Predictors for EVAR patients were presence of iliac aneurysm(s), CABG/PTCA within the past 5 years, ejection fraction ≤30%, on beta blocker, creatinine ≥1.5mg/dl, and current smoker, with area under ROC=0.784. For EVAR patients, who had an average LOS of only 1-2 days, total costs ranged from \$21,904 to \$47,511. For Open patients, who had an average LOS of 5-7 days, these figures ranged from \$13,549 to \$35,685 in constant dollars. **CONCLUSIONS:** This wide range of total cost invites the introduction of resource utilization tools based on cost predictors that can optimize clinical outcomes and reduce costs at the individual patient level.

#### PCV49

##### ECONOMIC ANALYSIS OF STENT PLATFORMS: COST-EFFECTIVENESS OF THE PLATINUM CHROMIUM PROMUS ELEMENT COMPARED TO COBALT CHROMIUM PROMUS/XIENCE VERSUS EVEROLIMUS-ELUTING STENTS

Hale BC<sup>1</sup>, Stern S<sup>2</sup>, Kansal AR<sup>2</sup>, Allocco D<sup>1</sup>, Dawkins K<sup>1</sup>, Stone G<sup>3</sup>

<sup>1</sup>Boston Scientific, Natick, MA, USA, <sup>2</sup>United BioSource Corporation, Bethesda, MD, USA, <sup>3</sup>Columbia University, New York, NY, USA

**OBJECTIVES:** Platinum chromium everolimus-eluting stents (PtCr-EES) were compared to cobalt chromium everolimus-eluting stents (CoCr-EES) in the randomized controlled PLATINUM trial. Clinical outcomes including rates of target vessel revascularization (TVR), myocardial infarction (MI), and cardiac death have been reported through 2 years (n=1507), with 3 year data to come. An economic analysis was performed to assess the cost-effectiveness of PtCr-EES versus CoCr-EES accounting for stent reimbursement practice, in which payers reimburse by procedure but hospitals bear the direct cost of stents. **METHODS:** A Markov model was used to compare costs from payer (Medicare) and hospital perspectives of PtCr-EES versus CoCr-EES over two years, based. The model explicitly accounted for costs (2013) of differences in index procedure and long-term cardiac events. Payer costs for the index procedure were increased only for

those bailout (unplanned) stents associated with major complicating conditions (MCC; aortic dissections or extended length of stay), while hospital costs reflected all stents used (bailout or planned). Similarly, those MIs concurrent with TVR and all stent thromboses were modeled as MCCs of the TVRs, not separate events. **RESULTS:** PtCr-EES was cost saving versus CoCr-EES by \$277/patient from a payer perspective, due to reduced costs for bailout stenting during the index procedure (3.1% vs. 4.2%) and TVR over 2 years (4.3% versus 5.4%). Probabilistic sensitivity analysis found PtCr-EES was economically dominant (more effective and less costly) in 81% of replications. From a hospital perspective, PtCr-EES saved an additional \$151/patient in reduced stent acquisition costs. A detailed costing analysis would be required to determine how much of the \$277/patient reduction in reimbursement reflects reduced hospital costs, and thus total societal savings. **CONCLUSIONS:** PtCr-EES was found to be cost saving versus CoCr-EES from both payer and hospital perspectives, primarily due to reduced TVR over 2 years. Total societal savings may be up to \$428/patient.

#### PCV50

##### EVALUATING THE AVERAGE REINTERVENTIONS, REINTERVENTION COSTS AND TOTAL COSTS FOR A HEPARIN-BONDED EPTFE STENT-GRAFT IN PATIENTS WITH ATHEROSCLEROTIC DISEASE OF THE SFA

Mohr BA<sup>1</sup>, Martinell MJ<sup>2</sup>, Sheen AL<sup>1</sup>

<sup>1</sup>W.L. Gore & Associates, Inc., Phoenix, AZ, USA, <sup>2</sup>W.L. Gore & Associates, Inc., Flagstaff, AZ, USA

**OBJECTIVES:** We examined the average number of reinterventions, average reintervention costs (ARC), and the average total costs (ATC) for the latest iteration of a heparin-bonded ePTFE Stent-Graft versus a bare metal stent (BMS) in patients treated for atherosclerotic disease of the superficial femoral artery (SFA). ATC includes costs for the initial implant, reinterventions, and follow-up care. **METHODS:** As previously reported by Saxon (2011) and Ansel (2011), two independent clinical studies of the Stent-Graft were recently completed. One-year results from the multicenter, single-arm, VIPER trial were compared to the one-year results of the BMS arm from the three-year, multicenter, randomized VIBRANT trial. The Stent-Graft used in the VIPER trial is the latest iteration of the device in use today. Patient characteristics were similar in both trials. Cost data from the Centers for Medicare and Medicaid Services was used to estimate ARC and ATC for all patients, and secondarily, for patients oversized ≤20% at the proximal edge of the Stent-Graft (instructions for use recommend 5-20% oversizing). **RESULTS:** The Stent-Graft group trended toward fewer reinterventions per patient than the BMS group (0.36 vs. 0.63, P=0.15), lower ARC (\$3,143 vs. \$4,346, P=0.38), and higher ATC (\$16,482 vs. \$14,987, P=0.36) through one year follow-up. Patients oversized ≤20% trended toward fewer reinterventions per patient (0.21 vs. 0.63, P=0.08), lower ARC (\$1,588 vs. \$4,346, P=0.05), which was statistically significant, and lower ATC (\$14,524 vs. \$14,987, P=0.78) versus the BMS. **CONCLUSIONS:** Based on the comparison of one-year follow up data, the Stent-Graft trended toward reducing reinterventions and ARC for all patients being treated for atherosclerotic SFA disease compared to BMS. When oversized ≤20% at the proximal edge, the Stent-Graft reduced ARC (statistically significant finding) and trended toward reducing reinterventions and ATC. Long-term follow up will be needed to measure the benefits beyond one year for all patients.

#### PCV51

##### ECONOMIC IMPACT OF SWITCHING FROM METOPROLOL TO NEBIVOLOL FOR HYPERTENSION TREATMENT: A RETROSPECTIVE DATABASE ANALYSIS

Chen S, Tourkodimitris S, Lukic T

Forest Research Institute, Jersey City, NJ, USA

**OBJECTIVES:** Estimate the real-world economic impact of switching from metoprolol, the most commonly prescribed  $\beta$ -blocker for hypertension in the US, to nebivolol, a novel well-tolerated  $\beta$ -blocker with high  $\beta_1$  selectivity and vasodilatory properties, for hypertension treatment. **METHODS:** Retrospective database analysis with a pre and post study design was conducted using MarketScan database (2007-2011). Hypertensive patients continuously treated with metoprolol for at least six months (pre-period) and then switched to nebivolol for at least six months (post-period) were identified. The first nebivolol dispensing date was defined as the index date for switching. Data were collected for the two six-month periods pre- and post- switching. Monthly health care resource utilization and health care costs pre and post switching were calculated and compared using Wilcoxon and paired t-tests. Medical costs at different years were inflated to the 2011 dollar using medical component consumer price index. **RESULTS:** A total of 2259 patients, with a mean age of 60, met the selection criteria. Among them, 52% were male, 37% had cardiovascular (CV) disease. After patients switched to nebivolol, there were statistically significant reductions in the number of all-cause hospitalization (p<0.01), CV related hospitalization (p<0.01), outpatient visits (p<0.01), and CV related emergency room (ER) visits (p=0.01). Monthly inpatient costs reduced \$106 (p<0.01), while monthly drug cost increased \$49 (p<0.01). There were reductions on costs of outpatient and ER visits, but the differences were not statistically significant. Overall health care cost reduced \$63 per patient per month. Sensitivity analysis on length of medication exposure found similar results. **CONCLUSIONS:** This real-world study finds that patients who switched from metoprolol to nebivolol had a lower overall health care cost after switching.

#### PCV52

##### ECONOMIC BURDEN OF ACUTE CORONARY SYNDROME IN A GEOGRAPHICALLY DISTRIBUTED POPULATION FROM 2006 TO 2011 IN THE UNITED STATES